

9
PROPERTIES AND EFFECTS

OF

Greeley
A M A L G A M

EXAMINED.

IN A LETTER TO CHARLES A. LEE, M.D., AND PUBLISHED BY HIM IN THE
NEW-YORK JOURNAL OF MEDICINE AND THE COLLATERAL SCIENCES.

✓
BY ELEAZAR PARMLY,
DENTIST.

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1847.

TO THE READER.

THE late discussion which has been very properly called the 'Amalgam Controversy,' was commenced solely for the purpose of eliciting professional truth, and of acquainting the public with a subject upon which many have been grossly deceived, by men claiming to be dentists, claiming also to have discovered a material for stopping teeth, to which they gave 'Royal' names, until they exceeded in number the heads of the fabled Hydra—each assuming to be the successful discoverer. Unfortunately, however, for the credit of inventive genius, a single spark of light and heat from the Alchymist's fire resolved the whole (names and all) into a spongy, poisonous compound of mercury and silver.

At the commencement, I was not aware of the opposition, nor of the lack of moral and professional truth, that would be arrayed against me. There has not been, with a single exception, (that of Dr. Spooner,) one article that is not characterized by bitterness, ill-will, misrepresentation and abuse. Indeed, there is scarcely any species of unfairness or untruth that has not been resorted to to sustain amalgam, and its users, even to the false assertions that it has been used with the approbation of persons in teeth, that have since proved never to have been filled; and with still greater injustice have they gone further, in mentioning names of the honored dead, in connection with this practice. The question having been asked by my opponents, "What were the opinions of the departed Hudson and Hayden in that respect?" As to the second, I feel a pride and a pleasure in saying, from personal knowledge, that he was an uncompromising opposer of its use. And to save the untarnished fame of the first from so dark a stain, I will say, that he died long before the Crawcours, the introducers of the "Royal Mineral Succedaneum" came to this country; and until they came, I am not aware that it was ever used or known on this side of the Atlantic.

The testimony gathered, and contained in the following communication to Dr. Lee, may be relied on with the utmost confidence, coming as it does from men of the highest professional and moral integrity; and I would particularly recommend to notice, that portion of it coming from Dr. Chilton, who, for two months, had the compound under examination and experiment. The result is just what one in extensive practice has almost the daily opportunity of observing, and which, from chemical tests, establishes all I have advanced, all I have contended for, and for which so much bitterness and personal animosity has been shown, proving most clearly the remark made by a celebrated lecturer, "that truth and falsehood cannot amalgamate."

It has been asserted that amalgam is valuable as a filling for the first teeth of children. Nothing can be more pernicious, as the following case will prove. A child about six years old, had the two lower molar teeth, one of each side, filled with amalgam by a noted dentist of this city, which immediately brought on inflammation in the gums, investing membrane and nerves extending to the ear, by which she lost almost wholly, on both sides, the sense of hearing; and receiving no benefit from a long course of able medical treatment, her physician called upon me to ask whether I thought the deafness could arise from the effects of the amalgam. After giving such testimony as I had in hand, the child was brought to me, when, on examining the teeth, (which I immediately extracted and now have,) I found each had a large filling perfectly black, the gums were of a dark color, sore and spongy, and the roots of the teeth were also discolored, rough and partially absorbed. The child's health began immediately after the operation to improve, and in a few months her hearing was perfectly restored.

It has also been said that for stopping teeth amalgam is superior to gold, or any other material—that it does not oxydize—does not change color—will not discolor the teeth, nor suffer either decomposition or loss after being inserted in the teeth; that the oxyde of mercury cannot be produced by the action of the fluids of the mouth, etc., etc. Total ignorance of its qualities and effects may be an excuse for making these assertions; but lost indeed must the man of science be to truth and honesty, who knows better, and who will, nevertheless, make them to his patients. A case has occurred within a few days confirmatory on this point. A distinguished chemist of this city came to me a few evenings ago, suffering intense agony from a tooth that, four years before, had been very carefully filled with amalgam, by a well-educated M. D. dentist of this city. The enamel, although discolored, was unbroken. The cavity filled was much larger within than at its orifice, and no means could be discovered by which external agents could reach the nerve through the enamel. After extracting the tooth, I broke it open in his presence, and found the bone within the cavity perfectly black and soft,

so that an instrument could be passed through it to the nerve. The surface of the amalgam within the cavity was thoroughly oxydized, exceedingly rough and porous, and when put under a magnifying glass, resembled, in appearance, a piece of broken granite, that had been dipped in ink or lamp-black, which had dried upon the surface. Feeling desirous to avail myself of the benefit of his chemical knowledge, I gave him the broken pieces of tooth, with the amalgam, and requested that he would make a further examination, and favor me with the result of his deliberate judgment, which he has been kind enough to do; and as it corresponds so perfectly with that of Dr. Chilton, I here transcribe it, believing it in his case to be strictly true.

"The cause of the blackening of the bone of the tooth under the influences alluded to, seems to be, sulphuret of the protoxide of mercury, which is produced by contact of the gelatinous portion of the tooth with the amalgam of silver and mercury, which being porous, absorbs moisture, and thus induces magnetic action, producing the decomposition of the gelatin of the tooth as well as of the amalgam, which yields a portion of its mercury in the process.

"Then the combination of these substances, viz.: silver, mercury, and moisture, produces the decomposition of the organized matter of the tooth, and, consequently, of the amalgam. Such being the case, it follows—that the affinity of the two metals being broken by their reaction on the one part, and that of the organized portions of the other, a porous body is formed of the amalgam, by the particles of the mercury having partially left the silver to form a compound with the surrounding body; which, acted upon by the oxide of mercury, produces a pulpy black substance, (probably phosphate and carbonate of lime stained by sulphuret of mercury, with a little azotized matter,) that remains semi-solid, while it is in contact with the moisture of the mouth."

Such is the decided opinion and judgment of an able chemist in relation to the effects of amalgam on one of his own teeth, which is, by permission, submitted for further investigation; truth and correct professional practice, being now, as they have been, the only object desired. I would, therefore, most respectfully submit to the candid and intelligent reader, whether a substance from which can be produced, when acted upon by the fluids of the mouth, not only the oxide and sulphuret of mercury, but also the sulphuret of silver and oxide of copper, to such an extent as to cause a complete change in the dense and solid body of a tooth to its extreme point, changing also its color throughout, from ivory white to black, or verdigris green, can be a proper material to put into the delicately-organized structure of a tooth, or to come in contact with the still more delicately formed structures of tissues, nerves and membranes, with which the teeth are more or less connected, to say nothing of this substance constantly wasting, as above

shown, and this waste, in the form of oxide, etc., may either mix with the substance of the tooth, or be taken into the system, sometimes, as has been proved, producing salivation, and other alarming and aggravated evils, "even unto death."

E. P.

No. 1 Bond Street, December, 1847.

PROPERTIES AND EFFECTS

OF

A M A L G A M .

CHARLES A. LEE, M. D.—*Dear Sir*,—All subjects appertaining to the healing art, must of necessity be matter of interest to every member of the profession, and cannot, therefore, be out of place in the pages of a Journal devoted to the advancement of medicine and its collateral sciences. Although the operations of the Dentist are not always studied, nor perhaps understood, by those who are not practically engaged in them, yet they are either directly or remotely connected in innumerable instances with disorders implicating the system at large, and from so doing come under the observation of almost every practising physician in the country. The benefit of dental surgery, skilfully applied, needs no confirmation; but the hurtful results of injudicious treatment, both as affecting the soundness of the teeth, and their appendages, and as influencing the general health, would seem to demand the strictest scrutiny.

Fully impressed with the importance of these points, and having heard from Dr. Bemis that you felt a sufficient degree of interest to make inquiries of him in relation to Mr. Ames' case, which has such a strong bearing on the following subject, I now address you on topics involving the qualities and effects of mercurial paste, when employed as a stopping for decayed teeth; and adding such corroborative testimony of its destructive tendencies as will not only carry conviction, I trust, to your mind, but also to the minds of your readers, and all who may be interested in the inquiry.

As there are but few in the middle or higher walks of society in this country, who do not, sooner or later, require the services of the dentist, it will be a matter of importance to them, to learn from their medical advisers, what will affect the soundness of organs, so essential and important as the teeth, to the ordinary purposes of life, and so productive of pain and discomfort when maltreated, or in a disordered state, and by what means they are most likely to be benefitted when applying for relief.

It has been alleged that the reason why some dentists do not approve of amalgam pastes, is, that "they are not medically educated." The reverse is the fact—it is because they are well educated, and understand thoroughly its effects, that they repudiate amalgam, in all shapes, as a stopping for decayed teeth. It was from the tests that experience,

and the thorough investigations of men most carefully educated, and those most highly distinguished for scientific attainments, both in the medical and dental profession, that I was at an early period strengthened and confirmed in my convictions of its total unfitness for the purposes for which it was used; and my subsequent acquaintance with its baneful effects, not only upon the teeth but upon the general health, has led me to the decided conclusion that it should never be used or countenanced in any case; in fact, I do not understand how any one, knowing its harsh, irritating, and destructive effects to the health, structure, and vitality of the teeth, can use or recommend it to be used. Its effects upon the general health can be easily imagined from its having the power of producing, in some constitutions, salivation, and of so vitiating the secretions of the mouth as to make them capable of changing the color of gold stoppings, and destroying the elasticity and texture of gold plates and springs, worn in the mouth for dental and other purposes.

In proof of the correctness of the above belief and assertions, I will adduce the testimony of those who stand high as medical practitioners, as well as the testimony of those who have been medically educated, and who are not surpassed in this or any other country in practical skill and scientific knowledge in the dental profession—men who have too high a sense of the justice due their patrons, to neglect any means of doing them good; and whose time and services are too highly estimated, to justify their devoting hours, and days, of intense labor, to accomplish what a few minutes would do, if amalgam is what its advocates represent it to be.* And unless the mere holding of certificates or diplomas, of medical honors, has the power of changing the qualities of mercury and silver, which the science of chemistry has not yet been able to do, amalgam will be the same in the hands of a Rush or Wistar that it was in the hands of a Crawcour or Mallan.

I have seen as good stoppings from these last named persons as I ever have from those now using it in this city; some of whom not only denounced the Crawcours as swindlers and impostors, but contributed largely in money to assist in driving them from the country, after Dr. James R. Chilton, that able and accurate chemist, had discovered, by analysis, that the celebrated “Royal Mineral Succedaneum” was nothing more nor less than a mixture of quicksilver and silver.†

* To show the time required to perform operations when this pernicious compound is used, I will let Mons. Mallan speak for himself. “I can fill a tooth in a few seconds, sir, without giving the least pain. I filled thirteen teeth yesterday for a young gentleman of this city, a solicitor in chancery—a very liberal young gentleman. We can put in this composition of ours in less than no time. I filled these thirteen teeth yesterday in less than five minutes.” This operation of five minutes, for which this ‘liberal young gentleman’ was charged and paid *sixty-five dollars*, would have occupied one of our best practitioners in dental surgery, probably more hours than there were stoppings; hence the advantage gained in time and money by quackery and empiricism, to the prejudice of the public, and disgrace of the profession. You will, therefore, at once perceive, that if it were consistent with correct professional practice, with truth, and with honesty, to use amalgam, no dentist would forego the advantage to be derived from it; and although all might not have the *knack* of getting sixty-five dollars for every five minutes labor, yet they might with ease make ten times as much by filling teeth with amalgam, as they could do with gold, at the same prices.

† Besides affidavits and charges preferred against the Crawcours, in the hands of the police, for malpractice and imposture, in using mercurial paste for filling teeth,

Of the hundreds of teeth that have been filled with amalgam, and subsequently come under my observation, I have not yet seen one that did not bear marks of reproach to the practitioner who performed the operation, and clearly demonstrate, that professional skill, professional knowledge, and common honesty, were wanting in the operator, to an equal degree that one or the other of these three qualities were wanting in the Crawcours, who mixed the ingredients as well, and used them quite as successfully.

In commencing corroborative testimony in this matter, I shall, (having obtained ample permission so to do,) introduce some remarks from the investigations of Prof. A. Westcott, M. D., an able physiologist and pertinent writer on dental pathology and practical dentistry.

"From the mercury of this compound (amalgam) when oxydized or corroded, as *it always is* by the fluids of the mouth,† there is formed a substance closely allied to *calomel*; indeed, judging from its effects, we might say it more clearly resembled corrosive sublimate, which is but another compound of mercury."

The above facts will give an easy solution to the phenomena described in the following letter from Dr. J. Stearns, dated

"POMPEY, Dec. 15th, 1842.

DEAR SIR,—Regarding as I do the profession of dentistry as a science which ought to be ranked among the honorable professions, I therefore feel it my duty for the public good, and the honor of your laudable profession, to expose the vile quackery that is being practised on the community in this section, by an itinerant dentist, to the great injury of many individuals, and the success of the practice of dentistry. I will here give a statement of a case which has fallen under my observation. Miss R. S. called me to visit her. I found her with febrile symptoms; her tongue, gums, and glands swollen; a free discharge of saliva, a fetid breath, etc. I asked her if she had ever been salivated. She said never. I was positive, however, that she was under the influence of mercury, and then found that two or three weeks before, she had had several teeth filled with "Royal Mineral Succedaneum"—the teeth were very loose. The next day I removed one of the teeth, found it perfectly dead, and the alveolar process affected, which I have since removed, including almost the entire socket of the tooth.

"I have since been called to a Mrs. W., who has since been severely salivated by the use of the same compound.

"Respectfully, yours,

"JEHIEL STEARNS."

"A. Westcott, M. D."

the following is one of the certificates published against them in this city, in a printed circular, signed 'H. Villers, M. D.'

"A lady in Belfast had her teeth filled with their "Royal Mineral Succedaneum," which is notoriously a poisonous amalgam of mercury. The next morning, while at breakfast, the filling came out, and was swallowed by her; being informed by her friends of the deleterious nature of the 'Succedaneum,' she in great alarm sent immediately for her physician, who assured her that had she not promptly been relieved from the effects of this dangerous preparation, her life would in all probability have fallen a sacrifice to the culpable ignorance of a quack."

† See Dr. Chilton's letter at the close of this article.

Although the effect of the application of amalgam is not always the same as described in the foregoing letter, yet this compound has uniformly the effect of vitiating the secretions of the mouth, more or less ; but its influence in producing *salivation* in the ordinary sense of the word is regulated by the following circumstances.

1st. The susceptibility of the individual to the effects of mercury, it being well known that while some are not, others are, badly salivated by comparatively a trivial amount.

2d. The quantity of the cement used.

3d. The age and health of the subject.

Though the effect just noticed (the vitiating of the secretions of the mouth) is sufficient, independent of other considerations, to condemn its use, there are others of equal weight, equally susceptible of demonstration.

1st. It is uniformly and necessarily inefficient in arresting caries.

2d. It is in every case dangerous.

3d. It is never called for.

I. *Its inefficiency* : It being admitted that dental caries are chiefly if not wholly owing to the chemical action of the acrid fluids upon the calcareous portion of the tooth, the only object gained by *any* filling is the protection of the exposed bone from such attack. It follows, therefore, that any attempt failing to accomplish this must be futile. This is not attained by *amalgam fillings*. That this is the case, will appear from the following facts : 1st. When the plug is removed, it appears in all cases much more thoroughly oxydized on its posterior than its anterior surface. 2d. In all cases where the filling remains any considerable length of time, that part of the tooth behind it becomes soft, the earthy matter being absorbed ; to put this assertion to the test, institute the following experiments.

After preparing a quantity of the amalgam very carefully, fill with it a strong glass tube, making it as compact as possible ; having suffered it to congeal undisturbed, immerse it in a tincture of red sanders. In a short time you will find the colored fluid has penetrated entirely around it, absolutely hiding the cement from view. Again : Immerse a tooth containing a medium sized filling of the amalgam, in the same fluid, allow it to remain some time, break it open, and observe the result. If *further proof* of the shrinking nature of amalgam and its consequent inefficiency for stoppings were wanted, it will be evident when we consider its specific gravity.

II. *It is in every case dangerous* : In order to substantiate this position, if it can be shown that a single case of salivation has occurred from its use, the point is gained. This conclusion rests upon the fact that no man, however skilful, can judge *a priori* either of the natural or acquired susceptibility of an individual, in respect to the effect of mercury upon the system, and the consequent risk that is incurred in placing this amalgam in the mouth. But instead of simply *one* case, we have ample testimony to prove that salivation is a very common result ; and moreover, that the vitiation of the secretions of the mouth, is a universal one ; the culpableness, therefore, of this practice, stands out in bold relief.

Next, let us lay aside, for a moment, the evidence founded on an ob-

servation of the *result* of the *application*, and examine the *properties* of this paste, to see whether, by such examination, we should be led to anticipate what observation has shown to be true. To establish this, it is only necessary to show :

1st. That the mercury of the amalgam would, when so applied, become oxydized.

2d. That the amount of oxyde formed would, either as oxyde or as salts, by combination with the various acids with which it is liable to be brought in contact in the mouth or stomach, produce salivation.

1st. Under what circumstances is mercury oxydized?

“Mercury is oxydized by agitation in a bottle half filled with air, and is converted into a black powder.”

Now it is clear, that any metal which would be thus affected by simple contact of air, would be far more liable to oxydization in the mouth. For example, tin and silver will retain a polish when exposed to air and moisture ; but either of them is very soon corroded in the mouth ; but in addition to this, the susceptibility of the mercury contained in the amalgam to oxydize, is enhanced by its union with silver as an amalgam, as the following testimony from Dr. Turner tends to prove.

“The tendency of metals to unite with oxygen is considerably augmented by being alloyed. This effect is particularly conspicuous when dense metals are liquified by combination with quicksilver. Lead and tin, for instance, when united with mercury, are soon oxydized by exposure to the atmosphere ; and even gold and silver combine with oxygen, when the amalgams of these metals are agitated with air ! the oxydability of one metal in an alloy, appears, in some instances, to be increased in consequence of galvanic action. Thus Mr. Faraday observes, that an alloy of steel with one-hundredth of its weight of platinum, was dissolved with effervescence in diluted sulphuric acid, which was so weak that it scarcely acted on common steel ; an effect which he ascribed to the steel in the alloy being rendered positive by the presence of the platinum.”

If a similar galvanic action results from the union of silver and mercury in mineral paste, the mercury would of course bear the relation to the silver, as did the steel to the platinum, in the case cited by Mr. Faraday. These two metals, together with the fluids of the mouth, would constitute all the essentials to a galvanic pile. If we add to these considerations the fact, that while “the current formed by the contact of two metals, gives increased effect to the affinity of one of them for some element of the solution, the ability of the other metal to undergo the same change is proportionably diminished,” we have at once a clear idea of the changes which occur, and the successive steps in the process. By the galvanic agency exerted between these two metals by the fluids of the mouth, the natural affinity of the amalgam for oxygen is so increased as to make the decomposition comparatively rapid. But the most important conclusion which may be drawn from these premises, is the obvious fact, that the mercury (the most oxydable metal) would undergo much the most important, if not the entire change. For “when plates of zinc and copper touch each other in dilute acid, the zinc oxydizes more, and the copper less rapidly than without the contact.” On the same principle precisely, is the silver of this compound

protected at the expense of the mercury. It follows hence, that while the presence of the silver greatly facilitates the oxydation of the mercury, the latter metal is principally acted upon, and the result must be a copious formation of a copious mercurial oxyde, corresponding to the amount shown by observation to be formed.

The only remaining question is as to whether the amount thus formed, is capable of affecting the system so as to produce salivation. Of this, after presenting the following facts and quotations from the London Lancet and the British & Foreign Medical Review, I will leave all to judge, who will lay aside prejudice.

"Very lately, a man who was taking sulphuric acid for epistaxis, was severely salivated by two grains of calomel, in a dose of cathartic pills. The acids naturally contained in the stomach were the muriatic and acetic, and the mercury contained in two grains of calomel, or a few grains of blue pill, would of course be sufficient to produce the most serious consequences, if changed into the bi-chloride, or corrosive sublimate."—*Dr. Snow.*

The following is the opinion of Mr. Streeter :

"The fact of the action of the blue pill being much more powerful at one time than another, might be accounted for by the conserve of roses, with which the mercury was triturated, being occasionally mixed with sulphuric acid, for the purpose of restoring its lost color. Hence, instead of the simple oxyd, the sulphate of mercury was producing its effects on the patient. He had no doubt, however, that some constitutions were susceptible of the influence of mercury in its slightest forms. He had seen severe salivation produced by the administration of nine grains of blue pill, although it had been given in only one grain doses *three times* a day, and its effects watched with the greatest care."

The following opinion of Dr. Law corroborates the above.

"We directed one grain of calomel to be mixed up with a sufficient quantity of the extract of gentian, to make a mass to be divided into twelve pills, one of which was to be taken every hour. We found, in some cases, salivation to be produced by twenty-four of these pills, or two grains of calomel, and seldom were forty-eight pills or four grains required to produce this effect. * * * * We exhibited the blue pill in the same way, and found the mouth to become sore from six grains. * * We have found one drachm in every night sufficient to produce salivation."

Nothing, therefore, can be more clear, than that a small quantity of mercury is capable of producing salivation—much less (as will presently appear), than is usually contained in a *single* cement filling. "I have one of these fillings in my possession which weighs sixty-three grains." This amount of amalgam would be sufficient to produce, from the mercury it contains, thirty-seven grains of calomel, and about thirty-eight and one half grains of corrosive sublimate. On the supposition that the whole of this was administered as calomel in the way described above, it would be more than sufficient to salivate eighteen persons.

From the above facts and considerations we make the following conclusions.

1st. That any person wearing in the teeth any considerable quan-

tity of cement is *liable* to salivation from the accumulation of the oxyd shown above to take place.

2d. That every person (having such fillings) is subject to so much of the *constant* effects as would accrue from all the oxyd formed on the outer surface of these fillings, and which would be easily carried into the stomach.

3d. The like persons whose saliva is generally more or less acid, would be subject to the constant impressions from the entire oxyd formed on the whole surface. In either of the last two cases, the effect would be sufficient to keep up an unhealthy action of the secretions of the mouth, if it did not amount to salivation.

4th. The constant oxydation and solution of the surfaces of these fillings, renders them less and less perfect in respect to preserving the tooth, by giving more free access to those fluids which are the chief sources of decay.

III. The third position we took in relation to this amalgam was, that *Its use was never called for*.

This position rests mainly on the first and second; although were either or both of them refuted, it *could* still be easily supported.

So much for the testimony of Professor Westcott in this matter, which of itself is sufficient to consign the amalgam to perdition. I will now proceed and furnish additional testimony, conveyed in facts, and the opinions of eminent medical practitioners and dentists; and as it is a common practice, with some gentlemen in the medical as well as other professions, wholly ignorant of the nature and results of amalgam, to give their names to dentists who make a practice of using it, recommending them to public favor; it is to be hoped that the following cases, coupled as they are with testimony from men of the highest character in the medical and dental professions, containing incontrovertible proofs of the evils which may follow the employment of such persons, (who are frequently applied to through the instrumentality of the testimonials above referred to,) will have a beneficial influence in causing such recommendation to be withheld in future, and also in warning the community at large, to beware of that artifice and dishonor which, for the sake of a few dollars, would sacrifice the health, comfort and happiness of their fellow beings.

The following case, recorded by J. H. Foster, M. D., Dentist, and confirmed by Joseph Wooster, M. D., Physician, both of this city, and both well known as distinguished men in their respective departments of practice, will show the effects of amalgam conclusively, in producing salivation and other aggravated evils.

“On the twentieth day of July, 1843, I was called to visit a lady who was suffering from a tooth filled with the mineral amalgam. For a week succeeding the operation the patient suffered the most acute agony, passing sleepless nights, and obtaining only occasional relief by the use of opiates. On examination, I found the periosteum of the inferior maxillary bone much inflamed, the adjacent soft parts tumefied, very hard and acutely sensitive to the touch, the interior of the mouth was in an equally-inflamed state, and the patient had been for several days, and still was, severely salivated. With some difficulty I succeeded in extracting the tooth—the second molaris.

"Dr. Wooster informed me that this lady had previously enjoyed good health, and that he had not administered any mercurial medicines.

"I could cite many other cases which have come under my observation, in which this article, called by as many assumed names as there are operators who use it, has been productive of serious injury; one such case, however, is sufficient to convince any one who may witness it, of what I have been compelled to believe and have asserted.

"JOSEPH H. FOSTER, M. D."

"I hereby certify, that the facts as stated by Dr. Foster, in relation to the above case, are correct; that I was the constant medical attendant of the lady referred to, and know her to have been a comparatively-strong and healthy person previous to this event; that I had no necessity for, and had not administered any mercurial medicine previous to the extraction of the tooth; that on my first visit after the operation of Mons. Mallan, I found her glandular system had been so affected as to cause active mercurial salivation. I continued my attendance upon her for four months afterwards, during the whole of which time she was unable to attend to her family duties. The swelling of the face could not be reduced by any remedies, and continued the cause of so much acute suffering, that a fever ensued, and very active treatment was resorted to at one period to prevent a threatened inflammation of the brain. Exfoliation of the interior maxillary bone I was constantly apprehensive of, until I became convinced that the case had assumed the form of osteo sarcoma. At the end of four months, when this lady left me to go to the south, her face had not resumed its proportions, nor could I perceive any approximation to a change, and her pain still continued.

"I have no doubt that all her sufferings are justly attributable to the mineral amalgam so much used in filling teeth, and which, I am convinced, is not only an improper, but a highly-dangerous compound.

"JOSEPH WOOSTER, M. D."

In the following letter, which I received from Dr. Davis, well known to the medical profession as a gentleman of high character and scientific attainments, he has very accurately described in his own case that which happens to almost every one who has teeth filled with amalgam under similar circumstances.

"**DR. PARMLY.**—Dear Sir,—Agreeably to your request, I send you the following account of the effects of an amalgam, or mineral paste, or lithodeon, as it has been variously termed, on one of my own teeth. Some four years ago I called on a dentist to fill two molar teeth in the upper jaw, one on either side. The state of disease and the size of the cavity in each was very similar. The first was filled with gold foil in the usual manner, as I expected both would be. But before I was aware of the fact, the second tooth was filled with amalgam. Not wishing to find fault, I suffered it to remain, and treated it subsequently in every respect like the other tooth. In a few weeks the tooth filled with amalgam began to be slightly tender, the gum around it slightly swollen, and disposed to bleed from very slight causes. These symptoms slowly increased, and at the end of three or four months the periosteum

around the roots of the tooth became inflamed, and ultimately ulcerated, producing a disagreeable abscess in the gum. In the meantime the original cavity in the tooth continued to enlarge, and consequently before the end of one year the amalgam came out, having become much oxydized and changed to a bluish-black color. The body of the tooth now rapidly crumbled off, but the disease at the roots continued to increase, until, fearing an extension of the disease to the alveolar process of the jaw, I caused them to be removed by extraction; the surface of the diseased roots was very rough, produced by partial absorption. Subsequently the body of the other tooth (the one filled with gold) has broken away, but its roots still remain in the jaw, having never caused either pain or tenderness. Several other cases, equally well marked, have come under my observation; but as no notes were made of them at the time, I cannot now give them in detail. Indeed, I have never examined a tooth which had been filled with amalgam for any considerable length of time, in which the amalgam did not give unequivocal signs of oxydation.

"Yours, with great respect,

"N. S. DAVIS, late of Binghamton."

"11 University Place, N. York, Sept. 24th, 1847."

Doctor I. T. Curtis, of this city, has furnished me with the following interesting case, wherein the effects of this nostrum were distressingly manifested.

"Some years ago, I extracted twenty-one teeth and roots from the mouth of a young lady, all of which had been entirely ruined by the application of five or six pluggings of the famous "Royal Mineral Succedaneum," for the arrest of decay in its incipient stage. The use of the compound in this case, had made a complete wreck not only of the teeth, but of the parts adjacent; the mouth became fetid, the alveolar process completely destroyed, and the gums reduced to a spongy texture, bleeding profusely upon the least pressure. Originally this lady possessed an *unusually* fine set of teeth, but shortly after the application of the 'Succedaneum,' unequivocal signs of mercury having been introduced into the system made their appearance, and the mouth was gradually reduced to the above miserable condition, rendering it absolutely necessary to have the entire set of teeth extracted, before the fearful ravages caused by this poison could be arrested.

"I. T. CURTIS, M. D."

"I am also acquainted with a case wherein the application of amalgam to one tooth, not only destroyed the tooth so operated on, but brought on a constitutional mercurial fever, accompanied with other symptoms of the presence of mercury; and to such an extent was the constitution of the patient in this case reduced, solely, in my opinion, (and that of other medical gentlemen cognizant of the circumstances,) through the instrumentality of this poison, that a dangerous illness was superinduced.

"I. T. C."

"New-York, Oct., 1847."

There are Amalgam Dentists in this city who will, for a few dollars, show any one how to make paste and apply it to the teeth, which any one can do with a few minutes' instruction. When so *perfected*, some of them assume the title of *Doctor*, and with certificates from their renowned teachers, a physician or two, and a minister, travel about the country as dentists from New-York. The effects of the practice, (from a visit to a village near the city, of one of these Lithodeon makers, living in New-York,) are well described in a letter received from a clergyman, residing in the place where this occurred, and who speaks of several cases that came to his knowledge. I will transcribe two of them, and although not required to omit names, (all of which are well known here,) I do so to spare the feelings of persons connected with them, who might prefer not to have them mentioned.

"A few days after, I met Doctor ———, who told me that he had been getting his teeth filled with a paste the dentist used, and that he was afraid there was something wrong about it, as he had been sick ever since. I asked him if it was an amalgam of mercury that the dentist used. He said he could not tell; he had never had occasion for a dentist's services until then, and supposed it was all right, until he began to suffer severely. I replied, that I had been warned while a resident in ———, by my physician, against ever suffering any amalgam to be put into my teeth. We parted. In going home, he told the dentist what I had said, who, in consequence, called upon me. Dr. ——— appeared to be a courteous, and well-informed man, and tried hard to convince me that the preparation *he* used was perfectly harmless. * * I remember putting the question to him, whether there was any mercury in the paste? He confessed there was, but perfectly harmless in the way *he* used it. * * The result you will have anticipated. Dr. ———, who was a sufferer from the first, was under the necessity of having the teeth extracted, glad to get off with this loss. He always thought his health to have been for a time impaired in consequence."

Another case related by the same gentleman:—"Miss ——— had several teeth filled by this same dentist. Her head and eyes were affected almost immediately after the dentist left her. Fever ensued—and she continued to suffer from February or March until June following when she died. It was the expressed opinion of Dr. ———, to me, at various times, and also to the family, from his own experience, and that of others, who had suffered from the effects of the amalgam, that the sickness and death of Miss ——— was occasioned solely by the poisonous material used in this paste, which had been taken up into the system."

The following letter from J. W. Crane, M. D., is not only valuable in itself, coming as it does from a person of extensive and successful practice, and long experience as a dentist, but from its furnishing the testimony of a gentleman of high reputation as a medical man, and as a chemist and mineralogist.

"NEW-YORK, Oct. 1st, 1847.

"DR. PARMLY,—Dear Sir,—I received a letter from Dr. Frey, some months since, concerning the question which you have so long and so ably defended; and without asking his permission, I take the liberty to

place it at your disposal. * * Dr. F. is a gentleman of extraordinary educational attainments in chemistry and mineralogy, and is now practically investigating those sciences in the West. Dr. F. is not a dentist, and I therefore consider the document much more valuable, and free from prejudice.

"I have often expressed my opinion in private, and occasionally in public, *against* the use of mercurial cement in *all cases*, and the long controversy on this subject has not caused any change in my opinion. I understand that some of the advocates of cement, think that a medical education would favor the use of this *dental curse*. If any now exist, holding this opinion, let them read their books backwards, until they arrive at the place where they started, for ignorance is preferable to learning badly used.

"Respectfully, yours,

"J. W. CRANE, M. D.,

"Dr. E. Parmly." 11 Le Roy Place."

[Copy of Dr. Frey's letter above mentioned.]

"To J. W. CRANE, M. D.,—Dear Sir,—I have known a case in which a large cavity in a molar tooth in the upper jaw was filled with cement containing mercury, and in the course of two months the lady lost not only the tooth which was filled, but the tooth on each side, which were quite free from decay, the mischief evidently arising from mercurial disease of the gums, induced by the presence of mercury used in the cement.

"Respectfully, yours,

"J. M. FREY, M. D."

The following case of diseased antrum, in which I obtained the examination and advice of one of our most eminent surgeons, was undoubtedly occasioned from the effects of mercurial paste.

A lady called on me, in great distress, from disease in the first right molar tooth of the upper jaw. On examining the mouth, I found the gum around the aforesaid tooth to be of a dark hue, and quite destitute of healthy circulation. The tooth itself was also dark and necrose, and evidently demanding immediate extraction. Before removing the tooth, I passed a probe along the side of the tooth, completely into the cavity of the antrum maxillare. When the tooth was extracted, profuse hemorrhage ensued, and considerable portions of ash-colored bone adhered slightly to the fangs. Six or eight other pieces of bone, about the size of small peas, were afterwards removed from the cavity of the sinus. The cavity was filled with blood, which made its escape through the nostrils, down the throat and out of the mouth of the patient. The lady informed me that she had often been nearly strangled at night by purulent matter, which made its escape from the antrum, through the nostrils into the fauces, larynx, and trachea. I found so large an opening into the antrum, after removing the diseased tooth and decomposed bone, that I could easily pass my little finger quite up to the suborbital parietes of the cavity. This tooth had been filled with a large plug of mercury and silver, which was unquestionably the cause of the deplorable effects above described.

I could furnish many cases of great interest from other distinguished professional gentlemen, but will conclude the testimony under this head, with a statement of the deplorable effects of *paste*, in the case

of the lamented N. P. Ames, Esq., which I subjoin in that gentleman's own language, and which I give in preference to abundant proofs of the same purport, with which I have been favored from other authentic sources.

As a report, however, has gone widely abroad, and received great weight and credence, that Dr. Bemis, of Cabotville, (Mass.) was Mr. Ames' attending physician, and that he had expressed opinions adverse to the facts advanced by the deceased, I will take leave to say, that Dr. Bemis was not the attending physician of Mr. Ames at the time his health is alleged to have first suffered from the mercury used in stopping his teeth, nor was he in attendance at the time of Mr. Ames' death. The doctor had no intercourse with the latter at the one period or at the other, and knowing nothing of the circumstances, he could not contravene the statements made by Mr. Ames himself, which I had caused to be published, and which, until he read them in print, was not aware that Mr. Ames had made any such communication, having no recollection of ever hearing from him an account of his illness in Paris, or what he supposed to be the cause of it, or that he had any teeth filled with the material with which they were filled.

The report made by the person employed by some *amalgam dentists* of this city, to call on Dr. Bemis, was entirely opposed to the facts, as delivered to me by that physician in June last; and being desirous of knowing his views more fully, I made Dr. B. a second visit in September: having then a longer conversation with him, he spoke of the statement that had been published as coming from him, and assured me that the publication of it was in no manner authorized, nor was any other from him in reference to the case, (except a letter to Dr. Lee), that all he said to the person who came from New-York, occurred in a general conversation, not knowing or supposing that any use was to be made of it; and furthermore, said his object in writing to Dr. Lee, (supposing the letter would be published), was to put a stop to all further inquiries of him, with which he had been much annoyed.

Mr. Ames was absent one year from his home; on his return he was suffering from paralysis, occasioned, as he and all his friends firmly believed, by the agency of mercury, with a preparation of which his teeth had been filled. Dr. Bemis informed me that he knew nothing of the case, that would either contradict or confirm Mr. Ames' own assertions; and not having been present at the time of his contracting his illness, and knowing nothing of the cause of it; that he had not seen him at all for six or eight months previous to his death; and that the only statement he had made in relation to this matter, was contained in the letter to Dr. Lee above mentioned, of which he handed me a copy, to prove, as he said, that he had favored neither the one side nor the other of those who took part in the Dental controversy. To show Dr. Bemis' neutrality as to the points in question, I here annex his letter, *verbatim*. I shall also introduce a most interesting letter written by Dr. Booth, an eminent physician, which will be read with interest, in connection with that of Dr. Bemis:

“CABOTVILLE, Mass., June 23, 1847.

“DR. CHARLES A. LEE, New-York:

“DEAR SIR:—Your letter, (accompanying Journal), requesting the

details in the case of the late N. P. Ames, Esq., of this village, were duly received.

"I have had numerous similar inquiries within the last two or three weeks, from members of our profession, and also from dentists; and for reasons, have not answered them.

"Mr. Ames' case was an obscure one—of long standing; and during the last eighteen months of his life, he was not under any active medical treatment, except, perhaps, the last two or three months he was under hydropathic treatment at Brattleboro', Vermont.

"There was no autopsical examination; and, in my opinion, no definite facts can be elucidated in his case, having a *decided bearing* upon the subject of mercurial amalgam. Moreover, I am aware of the repugnance his relatives have to the publicity of his name and case in all the papers of the day.

"Yours, with much respect,

"DAVID BEMIS."

Letter from Dr. Booth, of Springfield, to Dr. Crane, of this city, by whom it was obligingly furnished:

"October 16, 1847.

"DR. CRANE—My Dear Sir: In answer to some inquiries of yours, with regard to the case of the late Mr. Ames, and also my opinion as to the propriety of using amalgam, I subjoin the following remarks.

"Having resided for several years past in Springfield, and having known Mr. A. both before and after his trip to Europe, I can truly say, that he was a man 'formed in nature's finest mould.' To a superior mind, well trained by judicious culture, was joined in him a character above reproach. An urbanity of manner, such as falls to the lot of few, was his also. But to our subject. While in London, he had some teeth filled with this mercurial paste, and to use an expression of his, 'never saw a well day after.' What was the cause? Mr. A. supposed that he had swallowed some of this substance. He was a man not likely to be mistaken upon such a point, nor to form an opinion without good and sufficient reason. Then the question arises, could the passing of this substance in small quantities into the stomach, affect the system injuriously? or, in other words, could the specific effects of mercury be produced? Undoubtedly they might, although many persons in similar circumstances would escape all harm. The mere fact of many persons suffering no bad effects from this substance, does not prove its harmlessness. By no means. Negative testimony is worth little, compared with positive. The susceptibility of various constitutions to the various preparations of mercury, is as varied almost as the human countenance. Peculiar idiosyncrasies, to which you have so happily alluded, must modify its action. But Mr. A. was exposed to wet and damp weather, soon after his teeth were filled, and what was the result? Just what we are led to expect, in cases of persons taking cold while under the specific influence of mercury. In such cases, the osseous system of the lower extremities particularly becomes implicated, producing a condition termed mercurial rheumatism, or mercurial palsy. The patient loses gradually the use of his limbs for the purpose of locomotion, and although he may live several years,

yet is in such a state, that death might almost be considered a blessing. A case which occurred under my own observation, and with the circumstances of which I was perfectly familiar, is in point. A young man, while under a mercurial course, went in bathing, and contracted cold. From that day he gradually lost the use of his lower limbs, and although he afterwards lived more than ten years, was never able to do any business for the latter half of this time, dragging out a life rendered a burden to himself and friends. My dear sir, I must say, I consider these two cases very similar, not only in outward appearance, but also in the internal changes, produced, as I think, by the same influence. You will perceive the conclusion to which I have come is this, that while Mr. A. was under the poisonous influence of mercury, he took cold; the result was such as we should be led to expect from similar causes, acting in like manner upon the human system. For seven long years he was a sufferer, till at last his worn and broken constitution found a resting place amid its kindred dust. Here I leave all; and while I ask your indulgence for this hasty manner in which I have treated the subject, believe me,

"Yours, truly,

"ALFRED BOOTH."

To return. I will now make such extracts from Mr. Ames' letters, as will enable medical men to judge whether the effects produced and described by him, are or are not unequivocal proofs of the presence of mercury in the system; and also whether mercury, when so absorbed, does not occasionally prove a source of most calamitous disease.

"I have been very much troubled with my teeth, and for a few days the same cause has affected my whole system. About the 1st of July I placed myself in the hands of a dentist in London, and had several teeth filled with a new-fashioned mineral paste, that was highly recommended. Several days after, I found a piece of the paste loose in my mouth, and on examination found it to be nearly all quicksilver. I felt no immediate bad effects, but as the wet and cold weather came on, which commenced in August, I was much affected by the cold, and on my arrival here, being quite out of health, was told by my physician that I was thoroughly salivated,* and without any doubt from the ce-

* The public has already been informed by an intimate friend of Mr. Ames, who crossed the Atlantic with him, and saw much of him while in England, that he was in very fine health when they arrived there; and I have, within the past week, received the testimony of an eminent professional gentleman, late a practitioner in Europe, but now in this country, who affirms, that when Mr. Ames' physician in Paris told him that he was "thoroughly salivated," Mr. Ames, with much astonishment, replied, "I have not taken a dose of medicine of any kind in six years."

Dr. Bartlett, of Massachusetts, who was in Paris, and acquainted with Mr. Ames at the time of his suffering, without knowing that he had teeth filled with mercury and silver, (of the effects of which Mr. Ames himself probably at that time could not have been aware,) pronounced his illness to be of mercurial origin, as his letter to me, part of which I transcribe, will fully testify.

"NEW BEDFORD, Oct. 24, 1847.

"DEAR SIR,—I saw much of Mr. Ames while in Paris, but as he was not under my professional care, I took no notes of his case. His disease at that time seemed chiefly confined to the glandular system, and I always suspected it to be of mercurial origin.

ment in my teeth. He said he would not pronounce on the case so quick, if I were the first that had come to his knowledge from the same cause, but that I was not. My lower teeth have nearly all become loose, and there is much probability that I shall lose them all before long. I have suffered severely night and day, although able most of the time to travel. I am now in good American hands, and recovering rapidly. What leads me more fully to the belief, that the cause of my situation is mercury, and proceeding from my teeth, is, that one-fourth of what was put into one tooth, and which I took loose from my mouth, was sufficient to quick (whiten) a penny completely. I had then probably swallowed the remainder from that tooth, and from several others. October 10, 1840."

Shortly after writing the above, Mr. Ames being seated in the open air for some time, witnessing an imposing public ceremony, was struck with paralysis, so as to be obliged to be carried home. Feeling anxious, a few months afterwards, to ascertain whether his ailment had implicated his lungs, he had an examination made, which he describes in a letter, dated Feb. 21, 1841.

"Feeling an increased anxiety on my own account, as well as on account of my friends, I concluded to advise with the best physician, conjointly with the one I had been employing. I found *that best* to be Dr. Mott, formerly of New-York, now residing here. He met the other physician, and they both assured me that my lungs were sound, but that I had set out too soon, and in the most unfavorable weather. I feel quite inclined to listen to the particular advice of my physicians with regard to my future course; more especially, for a few weeks longer, they have advised that I should not overdo in the least, not on account of my lungs, but on account of my *glands*, which have all been inflamed and swollen."

As my object, in this case, is solely to show the hurtful effects of this deleterious poison upon the system, further details on this interesting case would be out of place; and I will merely add, that towards the close of the life of this beloved and valuable man, his paralysis became more confirmed, until he eventually wholly lost the use of his lower limbs; and after more than six years of intense suffering, he at length perished—a victim, undoubtedly, to the baneful effects of the mineral employed in the operations to which his teeth had been subjected—mourned over by friends—respected and beloved by all—a loss to science and to the nation, whose servant he was, and in whose special mission he was officially engaged when this calamity befel him.

In order to learn the views of others in the profession, I addressed a short circular to the dentists who have gained the highest rank in other

He dated the origin of his sufferings from the time he was in London, but he never said anything to me about having had his teeth filled with amalgam. It was during the first two or three weeks of his residence in Paris that I knew him; he was better at the time I left, but the period of his greatest sufferings was after that. I have never seen him since except for a few moments one day in Springfield, when I was too much shocked by his hopeless condition, to wish to converse with him upon the subject of his health.

"Very respectfully yours,

LYMAN BARTLETT."

cities, for their practical skill and scientific knowledge, most of whom have been medically educated, and are graduates in medicine; I received from them the following answers.

“PHILADELPHIA, Walnut-street, June 8, 1847.

“MY DEAR SIR,—I cheerfully comply with your request, ‘in as few words as possible,’ by stating my opinion, that amalgams are *entirely unfit* for stopping or filling teeth. But I am unable to decide whether it be the lack of honesty, or want of knowledge and liberality, which induces a preference with some persons, for such base compositions over gold.

“Very truly and respectfully yours, etc.,

“E. B. GARDETTE.”

“MONTREAL, June, 1847.

“MY DEAR DOCTOR,—In answer to your note of the 17th I will state briefly, that my experience in the use of amalgam for filling teeth, is such as to warrant me in saying, that it is totally unfit for the purpose under any circumstances, saying nothing of the local or constitutional injuries that this filling is sure to inflict to a greater or less degree; the shrinking of it while hardening is sufficient to render it useless as a material for plugging teeth. This shrinking being in proportion to the size of the filling, in very small cavities, such as the veriest ninny in the profession ought to fill successfully with gold, its effects upon the structure of the teeth are less observable; but in large cavities it freely admits the fluids of the mouth between it and the walls of the cavity, its surface becomes oxydized, and the whole tooth blackened in consequence. Though these are the least of the objections that may be brought against this material, they are alone sufficient in my opinion to prohibit its use.

“I am surprised that a set of men, or even one man, can be found, who dare insult an enlightened public by advocating so dangerous a practice; and I cannot help feeling, that he who uses amalgam, even with the approbation of the patient, commits an act in the highest sense dishonest and disgraceful.

“I am, my dear sir, yours, sincerely and truly,

“W. H. ELLIOT.”

“DR. E. PARMLY, Bond-street, New-York.”

“BOSTON, June 11, 1847.

“All amalgams, under whatever name, that I have known to be employed for filling teeth, I hold to be injurious in their effects; and though in some instances they remain for a long time, and appear to be harmless, they do, *in all such*, fall short of gold in effecting the preservation of the teeth.

“The operator, who is ignorant at this day of the mischief he may do by using amalgams, is not worthy of being trusted; and the accomplished dentist who has it in his power to do well, and who must and does know as well as you or I do, that gold is in every respect the superior article, and will still use the mercurial compounds instead of it,

does but barter his conscience to cheat his fellow-beings out of their teeth, perhaps of their health, and possibly of their life.

"Yours, very truly, J. F. FLAGG."

"Dr. E. PARMLY."

"BOSTON, June 10, 1847.

"DEAR SIR,—We answer with pleasure the questions contained in your note of the 7th. First, we have never used amalgams in any form, knowing them to be injurious to the teeth under *any circumstance*. Secondly, we consider it decidedly dishonest for any dentist to use a mercurial composition, saying that it is equal to gold for filling teeth, or that it will preserve them for any great length of time.

"Yours, with much respect, J. & E. G. TUCKER."

"PHILADELPHIA, June 11, 1847.

"MY DEAR SIR,—Yours of 17th instant is before me. As to your first inquiry, I would say, that I have not considered amalgam fit nor safe for stopping teeth, and have never used it.

"I cannot consider any one honest who would use it, and say it was better than gold; if they be honest and use it, they must be grossly ignorant, and consider the community to be so also.

"Very respectfully, yours, LEWIS ROPER."

"Dr. E. PARMLY."

"WASHINGTON, D. C., June 9, 1847.

"MY DEAR DOCTOR,—In answer to yours of the 7th, I have no hesitation in saying, that I consider amalgam totally unfit for plugging teeth. As to the honesty of those who say amalgam is better than gold for plugging teeth—if they be honest—they either know a great deal more, or a great deal less, than I do about it.

"Yours, most respectfully, EDWARD MAYNARD."

"Dr. E. PARMLY."

"BALTIMORE, June 11, 1847.

"MY DEAR DOCTOR,—In reply to your note of the 8th instant, I beg to state that, during the last ten or twelve years, my opportunities for observing the effects of amalgam have been, I am sorry to say, very frequent, and I have yet to see the first case in which any real benefit has been derived from its use: on the contrary, many cases have fallen under my observation, in which very pernicious effects had resulted from its use. In short, the result of my observations upon the subject is, that it discolours the teeth, *often* destroys their vitality, frequently induces tumefaction and tenderness of the gums, buccal membrane, and alveoli-dental periosteum, vitiating the secretions of the mouth, and sometimes causing salivation.

"In conclusion, I am decidedly of opinion, that any tooth which can be filled with any material and rendered serviceable, may be filled with gold. Entertaining these views, and they are the result of critical and extensive observation, I am constrained to believe that those who use and recommend amalgam, as better than gold for filling teeth, are either deceived themselves with regard to its effects, or wish to deceive their patients.

"Very truly and sincerely yours,

C. A. HARRIS."

"ELEAZAR PARMLY, M. D."

"CAZENOVIA, June 15, 1847.

"DEAR SIR,—In reply to yours, I have to say, that I consider amalgams *not only unfit but dangerous* for plugging teeth; unfit, because they do not answer the purpose of a proper stopping; inasmuch as, like all other metallic compounds and cements, in passing from a soft to a hard consistence, they necessarily *contract*, leaving a space between the filling and the walls of the tooth, thereby defeating the prime object of a good stopping; to wit, impermeability to fluids, and other modifying influences from without.

"It is unfit, as it easily oxydizes and discolours the teeth; and further, because in skilful hands it is never necessary, gold and tin being infinitely superior. It is dangerous, because it readily unites with acids, with which it may come in contact in the mouth; and may thus generate a poisonous compound, nearly akin to corrosive sublimate, which is constantly being received into the system. It is also dangerous as corrupting the secretions of the mouth, and inducing inflammation of the gums and alveoli, and because its effects can never be fully anticipated, every gradation of effect having been produced, from the most imperceptible, *even to death*.

"In view of these facts, and from my own observation and experience, I cannot but consider those of doubtful morality, who declare that an amalgam of mercury and silver is better than gold for plugging the teeth.

"Very respectfully, yours, etc., WM. H. DWINELLE."

"BALTIMORE, June 19, 1847.

"DR. E. PARMLY,—Dear Sir,—I have just received your note of the 17th, and in reply I can only say, that I have seen many teeth which had been filled with amalgam, and from my observation of its effects upon the teeth and other parts of the mouth, I do not hesitate to say that I consider it *decidedly pernicious*. Viewing the matter in this light, I cannot regard those who use it, asserting that it is better than gold, as honest or sincere in the declaration they thus make.

"I am, very respectfully, yours, E. NOYES."

Leonard Koecker, M. D., who is well known in this country and in Europe, as being one of the most celebrated dentists in the world, and whose practical skill and scientific knowledge has rarely been equalled in the profession, says, under date, "London, June, 1846," in relation to the use of amalgam, "nothing but the grossest and most culpable ignorance of the true principles of general as well as of dental surgery, can form an excuse for such a practice, by which, in fact, the beautiful remedy of arresting the progress of caries in teeth, for the purpose of stopping or filling them, is perverted into the means of destroying their vitality, and making them the cause of the most dangerous diseases, to which the gums, sockets, maxillary bones and cavities are not only liable, but by which not unfrequently even the most important organs and functions of sight, hearing and smell, are impaired and gradually destroyed, or which may sometimes end in becoming cancerous, and proving fatal. The most distressing neuralgic diseases of the face and head, are also, in most cases, the result of such malpractice."

If you have paid any attention to the late controversy in the public

journals, in relation to this matter of amalgam, you have not failed to perceive that the advocates of it have contended strongly that it is only used in cases where gold cannot be—this is not true. One of our best physicians called upon me, and said, that a patient of his was under the influence of mercury, from having had her teeth filled with “paste.” On an interview with this lady, I removed amalgam stoppings from eight teeth, all of which have since been successfully filled with gold—a very common case.

I also have testimony to prove, that a celebrated user of amalgam, has lately taken the precaution to have it removed from his own teeth, and gold supplied in its place, by one of our best dentists.

Feeling a strong desire to have the question of the fitness of amalgam for stopping teeth forever set at rest, I placed in the hands of Dr. James R. Chilton, well known as the distinguished chemist of this city, several teeth which had been extracted on account of extreme suffering, after being filled with the amalgam; with the request that he would submit them to chemical tests. The following letter from that gentleman contains the result of his investigations, and fully establishes the truth of all I have contended for, as to the effects of amalgam upon the teeth, and proves beyond controversy that amalgam should never be used in the mouth, exposed as it is to the action of agents, producing not only the oxide but sulphuret of mercury, both of which, when taken into the system, produce the specific action of mercury; and small as the quantity may be so produced, whether in the mouth or after the substance had passed into the stomach, it has been clearly proved to be quite sufficient, under peculiar circumstances and in susceptible constitutions, to be the cause of alarming and disastrous consequences; besides, by its deleterious action upon the teeth themselves, when largely used, causing their inevitable destruction, by blackening, decomposing, and completely breaking up their entire structure.

“NEW-YORK, Nov. 13, 1847.

“E. PARMLY, Esq.—Dear Sir,—In accordance with your request, I have made a chemical investigation of the various decayed teeth which you handed me, the cavities of which were more or less filled with the amalgam of silver and mercury. These teeth presented the appearance of having been filled a long time previous to being extracted. The metallic filling of each was quite black, and in some it was of a porous or spongy texture. Upon breaking open the teeth, and removing the fillings, the cavities, to a considerable depth, were found to be greatly discolored, some being quite black, and in one it was of a dark green color, which extended even to the extremity of its roots.

“From the various experiments which I have made, both upon the external surface of the amalgam found in the cavities of these teeth, and upon the discolored portions of the teeth themselves, I have no doubt that the discoloration has been produced by the decomposition of a portion of the amalgam by the agents with which it has come in contact in the mouth, thereby producing both oxide and sulphuret of mercury, with a portion of sulphuret of silver.

“The tooth, the root of which was colored green, contained oxide of copper, no doubt derived from the amalgam which may have been made

by mixing mercury with the filings of ordinary silver coin, which always contains a portion of copper.

"Very respectfully, yours,

JAMES R. CHILTON."

In conclusion, permit me to say, that however strongly amalgam may be recommended by some, who, for convenience, use it, regardless of consequences; and by others, because they, from a total want of professional skill and ingenuity can use nothing else, its true character will be found in the foregoing testimony, which truth can neither controvert nor set aside.

I have the honor to be, with high respect,

Your obedient servant,

E. PARMLY.

No. 1 Bond-street, November, 1847.